

# SEQUENCE LISTING

<110> Maertens, Geert  
Bosman, Alfons  
Sablon, Erwin  
Zrein, Maan

<120> IMPROVED IMMUNODIAGNOSTIC ASSAYS USING REDUCING AGENTS

<130> 2551-48

<140>

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<150> PCT/EP99/02547

<151> 1999-04-15

<150> EP 98870087.8

<151> 1998-04-17

<160> 38

<170> PatentIn Ver. 2.0

<210> 1

<211> 36

<212> DNA

<213> Hepatitis C virus

<400> 1

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36

<210> 2

<211> 35

<212> DNA

<213> Hepatitis C virus

<400> 2

ctattagctg aaagtcgact gtctgggtga cagca

35

<210> 3

<211> 279

<212> PRT

<213> Hepatitis C virus

<400> 3

Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu  
1 5 10 15

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
20 25 30

Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
35 40 45

002101-19698960

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Phe Lys  
 50 55 60  
 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
 65 70 75 80  
 Tyr Met Ser Arg Ala His Gly Ile Asp Pro Asn Ile Arg Thr Gly Val  
 85 90 95  
 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
 100 105 110  
 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Met Ile  
 115 120 125  
 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly  
 130 135 140  
 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
 145 150 155 160  
 Ala Thr Ala Ala Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
 165 170 175  
 Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
 180 185 190  
 Ala Ile Pro Leu Glu Ala Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
 195 200 205  
 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Thr Ala Leu  
 210 215 220  
 Gly Val Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
 225 230 235 240  
 Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
 245 250 255  
 Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
 260 265 270  
 Thr Gln Thr Val Asp Phe Ser  
 275

<210> 4  
 <211> 279  
 <212> PRT  
 <213> Hepatitis C virus

<400> 4  
 Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu  
 1 5 10 15

05685964 "101200"

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
 20 25 30  
 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
 35 40 45  
 Gly Lys Ser Thr Thr Val Pro Ala Val Tyr Ala Ala Gln Gly Phe Lys  
 50 55 60  
 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
 65 70 75 80  
 Tyr Met Ser Arg Ala His Gly Ile Asp Pro Asn Ile Arg Thr Gly Val  
 85 90 95  
 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
 100 105 110  
 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
 115 120 125  
 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly  
 130 135 140  
 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
 145 150 155 160  
 Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
 165 170 175  
 Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
 180 185 190  
 Ala Ile Pro Leu Glu Ala Ile Lys Gly Gly Arg Arg Leu Ile Phe Cys  
 195 200 205  
 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Thr Ala Leu  
 210 215 220  
 Gly Val Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
 225 230 235 240  
 Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
 245 250 255  
 Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
 260 265 270  
 Thr Gln Thr Val Asp Phe Ser  
 275

<210> 5

<211> 279

<212> PRT

<213> Hepatitis C virus

0968964-101200

<400> 5

Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Leu Glu  
1 5 10 15

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
20 25 30

Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
35 40 45

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Gly Gln Gly Tyr Lys  
50 55 60

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Leu Gly Ala  
65 70 75 80

Tyr Met Ser Lys Val His Gly Ile Asp Pro Asn Ile Arg Thr Gly Val  
85 90 95

Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
100 105 110

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
115 120 125

Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly  
130 135 140

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
145 150 155 160

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
165 170 175

Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Cys Gly Lys  
180 185 190

Ala Ile Pro Leu Glu Ala Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
195 200 205

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Asn Leu Val Ala Leu  
210 215 220

Gly Val Asn Pro Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
225 230 235 240

Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
245 250 255

Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
260 265 270

Thr Gln Thr Val Asp Phe Ser  
275

002107-4969860

<210> 6  
 <211> 279  
 <212> PRT  
 <213> Hepatitis C virus

<400> 6  
 Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Leu Glu  
           1                  5                  10                  15  
 Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
                   20                  25                  30  
 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
                   35                  40                  45  
 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
           50                  55                  60  
 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
           65                  70                  75                  80  
 Tyr Met Ser Lys Ala His Gly Ile Asp Pro Asn Ile Arg Thr Gly Val  
                   85                  90                  95  
 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
                   100                  105                  110  
 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
           115                  120                  125  
 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly  
           130                  135                  140  
 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
           145                  150                  155                  160  
 Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
                   165                  170                  175  
 Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
                   180                  185                  190  
 Ala Ile Pro Leu Glu Ala Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
           195                  200                  205  
 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Pro Val Ala Leu  
           210                  215                  220  
 Gly Val Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Pro Val Ile  
           225                  230                  235                  240  
 Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
                   245                  250                  255  
 Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
           260                  265                  270

002101-16989860

Thr Gln Thr Val Asp Phe Ser  
275

<210> 7

<211> 279

<212> PRT

<213> Hepatitis C virus

<400> 7

Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Leu Glu  
1 5 10 15

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
20 25 30

Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
35 40 45

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
50 55 60

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
65 70 75 80

Tyr Met Ser Lys Ala His Gly Ile Asp Pro Asn Ile Arg Thr Gly Val  
85 90 95

Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
100 105 110

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
115 120 125

Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Asp Ile Gly  
130 135 140

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
145 150 155 160

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
165 170 175

Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
180 185 190

Ala Ile Pro Leu Glu Ala Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
195 200 205

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu  
210 215 220

Gly Val Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
225 230 235 240

002207-4989900



210 215 220

Gly Val Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
 225 230 235 240

Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
 245 250 255

Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
 260 265 270

Thr Gln Thr Val Asp Phe Arg  
 275

<210> 9  
 <211> 279  
 <212> PRT  
 <213> Hepatitis C virus

<400> 9  
 Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu  
 1 5 10 15

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
 20 25 30

Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
 35 40 45

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
 50 55 60

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
 65 70 75 80

Tyr Met Ser Lys Ala His Gly Ile Asp Pro Gly Ile Arg Thr Gly Val  
 85 90 95

Arg Thr Ile Thr Thr Gly Ala Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
 100 105 110

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
 115 120 125

Cys Asp Glu Cys His Ser Thr Asp Ser Thr Thr Ile Leu Gly Ile Gly  
 130 135 140

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
 145 150 155 160

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
 165 170 175

Glu Glu Val Ala Leu Ser Asn Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
 180 185 190

002101-198964-101200

Ala Ile Pro Leu Glu Thr Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
 195 200 205

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Ser Ser Leu  
 210 215 220

Gly Leu Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
 225 230 235 240

Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
 245 250 255

Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Ala  
 260 265 270

Thr Gln Thr Val Asp Phe Ser  
 275

<210> 10  
 <211> 279  
 <212> PRT  
 <213> Hepatitis C virus

<400> 10  
 Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu  
 1 5 10 15

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
 20 25 30

Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
 35 40 45

Ser Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
 50 55 60

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
 65 70 75 80

Tyr Met Ser Lys Ala His Gly Ile Asp Pro Gly Ile Arg Thr Gly Val  
 85 90 95

Arg Thr Ile Thr Thr Gly Ala Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
 100 105 110

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
 115 120 125

Cys Asp Glu Cys His Ser Thr Asp Ser Thr Thr Ile Leu Gly Ile Gly  
 130 135 140

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
 145 150 155 160

00210T-1969960

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
165 170 175

Glu Glu Val Ala Leu Ser Asn Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
180 185 190

Ala Ile Pro Leu Glu Thr Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
195 200 205

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Ser Ser Leu  
210 215 220

Gly Leu Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
225 230 235 240

Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
245 250 255

Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Ala  
260 265 270

Thr Gln Thr Val Asp Phe Ser  
275

<210> 11

<211> 279

<212> PRT

<213> Hepatitis C virus

<400> 11

Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu  
1 5 10 15

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
20 25 30

Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
35 40 45

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
50 55 60

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
65 70 75 80

Tyr Met Ser Lys Ala His Gly Ile Asp Pro Gly Ile Arg Thr Gly Val  
85 90 95

Arg Thr Ile Thr Thr Gly Ala Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
100 105 110

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
115 120 125

Cys Asp Glu Cys His Ser Thr Asp Ser Thr Thr Ile Leu Gly Ile Gly

002TOT-4969964-101200

002101-101200

130	135	140
Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu		
145	150	155 160
Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile		
	165	170 175
Glu Glu Val Ala Leu Ser Asn Thr Gly Glu Ile Pro Phe Tyr Gly Lys		
	180	185 190
Ala Ile Pro Leu Glu Thr Ile Lys Gly Gly Arg His Leu Ile Phe Cys		
	195	200 205
His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Ser Ser Leu		
	210	215 220
Gly Leu Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile		
	225	230 235 240
Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr		
	245	250 255
Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val		
	260	265 270
Thr Gln Thr Val Asp Phe Ser		
	275	
<210> 12		
<211> 279		
<212> PRT		
<213> Hepatitis C virus		
<400> 12		
Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu		
1	5	10 15
Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala		
	20	25 30
Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser		
	35	40 45
Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys		
	50	55 60
Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala		
	65	70 75 80
Tyr Met Ser Lys Ala His Gly Ile Asp Pro Gly Ile Arg Thr Gly Val		
	85	90 95
Arg Thr Ile Thr Thr Gly Ala Pro Ile Thr Tyr Ser Thr Tyr Gly Lys		
	100	105 110

002707-19698960

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
115 120 125

Cys Asp Glu Cys His Ser Thr Asp Ser Thr Thr Ile Leu Gly Ile Gly  
130 135 140

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
145 150 155 160

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
165 170 175

Glu Glu Val Ala Leu Ser Asn Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
180 185 190

Ala Ile Pro Leu Glu Thr Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
195 200 205

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Ser Ser Leu  
210 215 220

Gly Leu Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
225 230 235 240

Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
245 250 255

Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
260 265 270

Thr Gln Thr Val Asp Phe Ser  
275

<210> 13

<211> 279

<212> PRT

<213> Hepatitis C virus

<400> 13

Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu  
1 5 10 15

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
20 25 30

Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
35 40 45

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
50 55 60

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
65 70 75 80

Tyr Met Ser Lys Ala His Gly Ile Asp Pro Gly Ile Arg Thr Gly Val  
                     85                    90                    95  
 Arg Thr Ile Thr Thr Gly Ala Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
                     100                    105                    110  
 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
                     115                    120                    125  
 Cys Asp Glu Cys His Ser Thr Asp Ser Thr Thr Ile Leu Gly Ile Gly  
                     130                    135                    140  
 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
                     145                    150                    155                    160  
 Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
                     165                    170                    175  
 Glu Glu Val Ala Leu Ser Asn Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
                     180                    185                    190  
 Ala Ile Pro Leu Glu Thr Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
                     195                    200                    205  
 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Ser Ser Leu  
                     210                    215                    220  
 Gly Leu Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
                     225                    230                    235                    240  
 Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
                     245                    250                    255  
 Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
                     260                    265                    270  
 Thr Gln Thr Val Asp Phe Ser  
                     275

<210> 14  
 <211> 279  
 <212> PRT  
 <213> Hepatitis C virus

<400> 14  
 Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu  
   1                    5                    10                    15  
 Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
                     20                    25                    30  
 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
                     35                    40                    45  
 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys

09586964-101200

002TOT-196960

50	55	60
Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala		
65	70	75 80
Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val		
	85	90 95
Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys		
	100	105 110
Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile		
	115	120 125
Cys Asp Glu Cys His Ser Thr Asp Val Thr Ser Ile Leu Gly Ile Gly		
	130	135 140
Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu		
	145	150 155 160
Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile		
	165	170 175
Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys		
	180	185 190
Ala Ile Pro Leu Glu Ala Ile Lys Gly Gly Arg His Leu Ile Phe Cys		
	195	200 205
His Ser Lys Lys Lys Cys Asp Lys Leu Ala Ala Lys Leu Val Ala Leu		
	210	215 220
Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile		
	225	230 235 240
Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr		
	245	250 255
Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val		
	260	265 270
Thr Gln Thr Val Asp Ile Ser		
	275	

<210> 15  
 <211> 279  
 <212> PRT  
 <213> Hepatitis C virus

<400> 15  
 Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu  
 1 5 10 15  
 Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
 20 25 30

Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Asp Ser  
35 40 45

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
50 55 60

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
65 70 75 80

Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val  
85 90 95

Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
100 105 110

Phe Leu Ala Asn Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
115 120 125

Cys Asp Glu Cys His Ser Thr Asp Val Thr Ser Ile Leu Gly Ile Gly  
130 135 140

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
145 150 155 160

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
165 170 175

Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
180 185 190

Ala Ile Pro Leu Glu Ala Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
195 200 205

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu  
210 215 220

Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
225 230 235 240

Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
245 250 255

Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
260 265 270

Thr Gln Thr Val Asp Phe Ser  
275

<210> 16

<211> 279

<212> PRT

<213> Hepatitis C virus

<400> 16

09686964-101200

Met Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu  
 1 5 10 15  
 Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
 20 25 30  
 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
 35 40 45  
 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
 50 55 60  
 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
 65 70 75 80  
 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val  
 85 90 95  
 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
 100 105 110  
 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
 115 120 125  
 Cys Asp Glu Cys His Ser Thr Asp Val Thr Ser Ile Leu Gly Ile Gly  
 130 135 140  
 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
 145 150 155 160  
 Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
 165 170 175  
 Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
 180 185 190  
 Ala Ile Pro Leu Glu Ala Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
 195 200 205  
 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Gln Val Ala Leu  
 210 215 220  
 Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
 225 230 235 240  
 Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
 245 250 255  
 Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
 260 265 270  
 Thr Gln Thr Val Asp Phe Ser  
 275

002207-1969960

<211> 279  
 <212> PRT  
 <213> Hepatitis C virus

<400> 17

Met	Gly	Val	Ala	Lys	Ala	Val	Asp	Phe	Val	Pro	Val	Glu	Ser	Met	Glu	1	5	10	15
Thr	Thr	Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Ala	20	25	30	
Val	Pro	Gln	Thr	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser	35	40	45	
Gly	Lys	Ser	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys	50	55	60	
Val	Leu	Val	Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala	65	70	75	80
Tyr	Met	Ser	Lys	Ala	His	Gly	Val	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val	85	90	95	
Arg	Thr	Ile	Thr	Thr	Gly	Ala	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys	100	105	110	
Phe	Leu	Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile	115	120	125	
Cys	Asp	Glu	Cys	His	Ser	Ile	Asp	Ser	Thr	Ser	Ile	Leu	Gly	Ile	Gly	130	135	140	
Thr	Val	Leu	Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	145	150	155	160
Ala	Thr	Ala	Thr	Pro	Pro	Gly	Ser	Val	Thr	Val	Pro	His	Pro	Asn	Ile	165	170	175	
Glu	Glu	Val	Ala	Leu	Ser	Ser	Ile	Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys	180	185	190	
Ala	Ile	Pro	Ile	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys	195	200	205	
His	Ser	Lys	Lys	Lys	Cys	Asp	Glu	Leu	Ala	Ala	Lys	Leu	Ser	Gly	Val	210	215	220	
Gly	Ile	Asn	Ala	Val	Ala	Tyr	Tyr	Arg	Gly	Leu	Asp	Val	Ser	Val	Ile	225	230	235	240
Pro	Thr	Ser	Gly	Asp	Val	Val	Val	Val	Ala	Thr	Asp	Ala	Leu	Met	Thr	245	250	255	
Gly	Phe	Thr	Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	Cys	Val	260	265	270	
Thr	Gln	Thr	Val	Asp	Phe	Ser													

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<210> 18  
 <211> 279  
 <212> PRT  
 <213> Hepatitis C virus

<400> 18

Met Gly Val Ala Lys Ala Val Asp Phe Val Pro Val Glu Ser Met Glu  
 1 5 10 15

Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala  
 20 25 30

Val Pro Gln Thr Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser  
 35 40 45

Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys  
 50 55 60

Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala  
 65 70 75 80

Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val  
 85 90 95

Arg Thr Ile Thr Thr Gly Ala Pro Ile Thr Tyr Ser Thr Tyr Gly Lys  
 100 105 110

Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile  
 115 120 125

Cys Asp Glu Cys His Ser Ile Asp Ser Thr Ser Ile Leu Gly Ile Gly  
 130 135 140

Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu  
 145 150 155 160

Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile  
 165 170 175

Glu Glu Val Ala Leu Ser Ser Thr Gly Glu Ile Pro Phe Tyr Gly Lys  
 180 185 190

Ala Ile Pro Ile Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys  
 195 200 205

His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Ser Gly Phe  
 210 215 220

Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile  
 225 230 235 240

Pro Thr Ser Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr  
 245 250 255

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Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val  
 260 265 270

Thr Gln Thr Val Asp Phe Ser  
 275

<210> 19  
 <211> 957  
 <212> DNA  
 <213> Hepatitis C virus

<400> 19  
 atggtaagat caagtagtca aaattcgagt gacaagcctg tagcccacgt cgtagcaaac 60  
 caccaagtgg aggagcaggg aattcaccat caccatcacc acgtggatcc cgggcccattg 120  
 ggggttgcca aggcgggtgga ctttgtaccc gtagagtcta tggaaaccac catgcgggtcc 180  
 ccggtcttta cggataactc atctcctccg gccgtaccgc agacattcca agtgggcccatt 240  
 ctacacgccc ccactggtag tggcaagagc actaagggtgc cggctgcata tgcagcccaa 300  
 ggggtacaagg tacttgctct gaacccatcc gttgcgcgca ccttaggatt cggggcggtat 360  
 atgtctaaag cacatggtgt cgaccctaac attagaactg gggtaaggac catcaccacg 420  
 ggcgccccca ttacgtactc cacctacggc aagtttcttg ccgacgggtg ttgctctggg 480  
 ggcgcttacg acatcataat atgtgatgag tgccactcga ttgactcaac ctccatcttg 540  
 ggcacgcgca ccgtcctgga tcaggcggag acggctggag cgcggcttgt cgtgctcgcc 600  
 actgctacac ctccgggggc ggtaaccgtg ccacatccca acatcgagga ggtggctctg 660  
 tccagcactg gagagatccc cttttatggc aaagccatcc ccacgaggt catcaaaggg 720  
 gggaggcacc tcattttctg ccattccaag aagaaatgtg acgagctcgc cgcaaagcta 780  
 tcgggcttcg gaatcaacgc tgtagcgtat taccgaggcc ttgatgtgtc cgtcataaccg 840  
 actagcggag acgtcggtgt tgtggcaaca gacgctctaa tgacgggctt taccggcgac 900  
 tttgactcag tgatcgactg taacacatgc gtcacccaga cagtcgactt cagctaa 957

<210> 20  
 <211> 318  
 <212> PRT  
 <213> Hepatitis C virus

<400> 20  
 Met Val Arg Ser Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His  
 1 5 10 15  
 Val Val Ala Asn His Gln Val Glu Glu Gln Gly Ile His His His His  
 20 25 30  
 His His Val Asp Pro Gly Pro Met Gly Val Ala Lys Ala Val Asp Phe  
 35 40 45  
 Val Pro Val Glu Ser Met Glu Thr Thr Met Arg Ser Pro Val Phe Thr  
 50 55 60  
 Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Thr Phe Gln Val Ala His  
 65 70 75 80  
 Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala  
 85 90 95

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ggcagcccca tcacgtactc cacctacggc aagttccttg ccgacggcgg gtgctcgggg 480  
 ggtgcttatg acataataat ttgtgacgag tgccactcca cagatgcaac atctattttg 540  
 ggcacggcca ctgtccttga ccaagcagag actgcggggg cgagactggt tgtgcttgcc 600  
 accgctacc ctcggggctc cgtcactgtg ccccatccta atatcgagga ggttgctctg 660  
 tccaccaccg gagagatccc cttttacggc aaggctatcc cccttgaggc aatcaaaggg 720  
 gggagacatc tcattcttctg ccactcaaag aagaagtgcg acgaactcgc cgccaaaccg 780  
 gtcgcgttgg gtgtcaatgc cgtggccttac taccgcggcc ttgacgtgcc cgtcatcccg 840  
 accagtggcg atgttgctgt cgtggcaact gatgctctca tgaccgggtt taccggtgac 900  
 ttcgactcgg tgatagactg taatacgtgt gtcaccaga cagtcgactt cagctaa 957

<210> 22

<211> 318

<212> PRT

<213> Hepatitis C virus

<400> 22

Met Val Arg Ser Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His  
 1 5 10 15

Val Val Ala Asn His Gln Val Glu Glu Gln Gly Ile His His His His  
 20 25 30

His His Val Asp Pro Gly Pro Met Gly Val Ala Lys Ala Val Asp Phe  
 35 40 45

Ile Pro Val Glu Ser Leu Glu Thr Thr Met Arg Ser Pro Val Phe Thr  
 50 55 60

Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His  
 65 70 75 80

Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala  
 85 90 95

Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala  
 100 105 110

Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Ile Asp  
 115 120 125

Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile  
 130 135 140

Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly  
 145 150 155 160

Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala  
 165 170 175

Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala  
 180 185 190

Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val  
 195 200 205

Thr Val Pro His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly

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210 215 220

Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Ala Ile Lys Gly  
 225 230 235 240

Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu  
 245 250 255

Ala Ala Lys Pro Val Ala Leu Gly Val Asn Ala Val Ala Tyr Tyr Arg  
 260 265 270

Gly Leu Asp Val Pro Val Ile Pro Thr Ser Gly Asp Val Val Val Val  
 275 280 285

Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val  
 290 295 300

Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser  
 305 310 315

<210> 23  
 <211> 981  
 <212> DNA  
 <213> Hepatitis C virus

<400> 23  
 atggttaagat caagtagtca aaattcgagt gacaagcctg tagcccacgt cgtagcaaac 60  
 caccaagtgg aggagcaggg aattcaccat caccatcacc acgtggatcc cggggcccatg 120  
 gccgcgggat tgggcccccc cataggtgta gcaaaagccc tacagttcat accagtggaa 180  
 acccttagta cgcaggctag gtctccatct ttctctgaca attcaactcc tctgtctgtc 240  
 ccacagagct atcaagtagg gtatcttcat gccccgaccg gcagcggtaa gagcacaaag 300  
 gtcccggccg cttatgtagc acaaggatat aatgttctcg tgctgaatcc atcgggtggcg 360  
 gccacactag gcttcggctc ttctcatgtcg cgtgcctatg ggatcgaccc caacatccgc 420  
 actgggaacc gcaccgtcac aactggtgct aaactgacct attccaccta cggtaagttt 480  
 ctgcgcgacg ggggttgctc cgggggggca tatgatgtaa ttatctgtga tgaatgtcat 540  
 gcccaagacg ccactagcat attgggcata ggcacgggtct tagatcaggc cgagacggct 600  
 ggggtgaggc tgacggtttt agcgacagca actccccag gcagcatcac tgtgccacat 660  
 tctaacatcg aggaagtggc cctgggctct gaaggtgaga tccctttcta cggtaaggct 720  
 ataccgatag ccctgtctaa gggggggaga cacctcgtct tttgccattc caagaaaaaa 780  
 tgtgatgagc tagcatccaa actcagaggt atggggctca acgctgtggc gtactatagg 840  
 ggtctcgatg ttcccgatc accaacaaca ggagacgtcg tggctctgcgc tactgacgcc 900  
 ctcactgactg gattcactgg agacttcgat tctgtcatag actgcaacgt ggctgttgaa 960  
 cagtacgttg acttcagcta a 981

<210> 24  
 <211> 326  
 <212> PRT  
 <213> Hepatitis C virus

<400> 24  
 Met Val Arg Ser Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His  
 1 5 10 15  
 Val Val Ala Asn His Gln Val Glu Glu Gln Gly Ile His His His His

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<400> 26																
Met	Val	Arg	Ser	Ser	Ser	Gln	Asn	Ser	Ser	Asp	Lys	Pro	Val	Ala	His	
1				5					10					15		
Val	Val	Ala	Asn	His	Gln	Val	Glu	Glu	Gln	Gly	Ile	His	His	His	His	
			20					25					30			
His	His	Val	Asp	Pro	Gly	Pro	Met	Ala	Ala	Gly	Leu	Gly	Pro	Thr	Ile	
		35					40					45				
Gly	Val	Ala	Lys	Ala	Leu	Gln	Phe	Ile	Pro	Val	Glu	Thr	Leu	Ser	Thr	
	50					55					60					
Gln	Ala	Arg	Ser	Pro	Ser	Phe	Ser	Asp	Asn	Ser	Thr	Pro	Pro	Ala	Val	
65					70					75					80	
Pro	Gln	Ser	Tyr	Gln	Val	Gly	Tyr	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	
				85					90					95		
Lys	Ser	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Val	Ala	Gln	Gly	Tyr	Thr	Val	
			100					105					110			
Leu	Val	Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ser	Phe	



ggcgccctatg acatcatcat atgcgatgaa tgccacgccg tggatgccac taccattctc 540  
 ggcacccgaa cagtccttga ccaagcagag acagccgggg tcaggctaac tgtgctggct 600  
 acggccacgc cccccgggtc agtgacaacc ccccatccca acatagagga ggtagccctc 660  
 gggcaggagg gtgagacccc cttctatggg agggcgatcc ccctgtctta catcaaggga 720  
 gggagacact tgatcttctg ccactcaaag aaaaagtgtg acgagctcgc ggcggccctc 780  
 cggggcatgg gcctgaacgc tgtggcgtag tacagagggc tcgacgtctc cgtaatacca 840  
 gctcaggag atgtagtggg cgtcgccacc gacgccctca tgacgggggt cactggagac 900  
 tttgactcgc tgatcgactg caatgtagcg gtcactcaag ttgtagactt cagctaa 957

<210> 28  
 <211> 318  
 <212> PRT  
 <213> Hepatitis C virus

<400> 28  
 Met Val Arg Ser Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His  
 1 5 10 15

Val Val Ala Asn His Gln Val Glu Glu Gln Gly Ile His His His His  
 20 25 30

His His Val Asp Pro Gly Pro Met Gly Val Ala Lys Ser Ile Asp Phe  
 35 40 45

Ile Pro Val Glu Thr Leu Asp Ile Val Thr Arg Ser Pro Thr Phe Ser  
 50 55 60

Asp Asn Ser Thr Pro Pro Ala Val Pro Gln Thr Tyr Gln Val Gly Tyr  
 65 70 75 80

Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Val Ala  
 85 90 95

Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala  
 100 105 110

Ala Thr Leu Gly Phe Gly Ala Tyr Leu Ser Lys Ala His Gly Ile Asn  
 115 120 125

Pro Asn Ile Arg Thr Gly Val Arg Thr Val Thr Thr Gly Glu Ala Ile  
 130 135 140

Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ala Gly  
 145 150 155 160

Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ala Val Asp Ala  
 165 170 175

Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala  
 180 185 190

Gly Val Arg Leu Thr Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val  
 195 200 205

Thr Thr Pro His Pro Asn Ile Glu Glu Val Ala Leu Gly Gln Glu Gly  
 210 215 220

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Glu Thr Pro Phe Tyr Gly Arg Ala Ile Pro Leu Ser Tyr Ile Lys Gly  
 225 230 235 240  
 Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu  
 245 250 255  
 Ala Ala Ala Leu Arg Gly Met Gly Leu Asn Ala Val Ala Tyr Tyr Arg  
 260 265 270  
 Gly Leu Asp Val Ser Val Ile Pro Ala Gln Gly Asp Val Val Val Val  
 275 280 285  
 Ala Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val  
 290 295 300  
 Ile Asp Cys Asn Val Ala Val Thr Gln Val Val Asp Phe Ser  
 305 310 315

<210> 29  
 <211> 957  
 <212> DNA  
 <213> Hepatitis C virus

<400> 29  
 atggttaagat caagtagtca aaattcgagt gacaagcctg tagcccacgt cgtagcaaac 60  
 caccaagtgg aggagcaggg aattcaccat caccatcacc acgtggatcc cgggcccacg 120  
 ggcgtagcca aatccattga cttcatccct gttgaatctc tcgatatcgc ctcacgggtca 180  
 ccagttttct ctgacaacag cagccacca gctgtgctc agtcctacca ggtgggctat 240  
 ttgcacgcgc caacgggcag cgggaagagc accaagggtcc ctgtcgcata tgctagtcag 300  
 ggggtataaag tactcgtgct aaatccctct gtgcgggcca cgctcggctt cggggcctac 360  
 atgtccaaag cccacgggat caaccccaac atcagaaccg gggtagcgac tgtgaccacc 420  
 ggggacccca tcacctactc cacttatggc aagttttctc cagatggggg ctgctcagcc 480  
 ggcgcctatg atgtcatcat atgcgatgaa tgccactcag tggacgctac taccatcctt 540  
 ggcattggaa cagtcctcga ccaggccgag accgcgggtg ctagggttagt ggttttagcc 600  
 acagccacgc ctcttggtac agtgacaact cctcatagca acatagagga ggtggctctt 660  
 ggtcatgaag gcgagatccc tttctacggc aaggctattc ccctagcttt catcaagggg 720  
 ggcagacacc taatcttttg ccattcaaag aagaagtgcg atgagctcgc ggcagccctt 780  
 cggggcatgg gtgtcaacgc cgttgcttac tataggggtc tcgacgtctc tggtatacca 840  
 actcaaggag acgtggtggt cgttgccacc gatgccctaa tgactggata caccggtgac 900  
 tttgactctg ttattgactg caacgttgcg gtctctcaaa ttgtagactt cagctaa 957

<210> 30  
 <211> 318  
 <212> PRT  
 <213> Hepatitis C virus

<400> 30  
 Met Val Arg Ser Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His  
 1 5 10 15  
 Val Val Ala Asn His Gln Val Glu Glu Gln Gly Ile His His His His  
 20 25 30

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His His Val Asp Pro Gly Pro Met Gly Val Ala Lys Ser Ile Asp Phe  
 35 40 45  
 Ile Pro Val Glu Ser Leu Asp Ile Ala Ser Arg Ser Pro Ser Phe Ser  
 50 55 60  
 Asp Asn Ser Thr Pro Pro Ala Val Pro Gln Ser Tyr Gln Val Gly Tyr  
 65 70 75 80  
 Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Val Ala  
 85 90 95  
 Tyr Ala Ser Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala  
 100 105 110  
 Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Ile Asn  
 115 120 125  
 Pro Asn Ile Arg Thr Gly Val Arg Thr Val Thr Thr Gly Asp Pro Ile  
 130 135 140  
 Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Ala  
 145 150 155 160  
 Gly Ala Tyr Asp Val Ile Ile Cys Asp Glu Cys His Ser Val Asp Ala  
 165 170 175  
 Thr Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala  
 180 185 190  
 Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Thr Val  
 195 200 205  
 Thr Thr Pro His Ser Asn Ile Glu Glu Val Ala Leu Gly His Glu Gly  
 210 215 220  
 Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Ala Phe Ile Lys Gly  
 225 230 235 240  
 Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu  
 245 250 255  
 Ala Ala Ala Leu Arg Gly Met Gly Val Asn Ala Val Ala Tyr Tyr Arg  
 260 265 270  
 Gly Leu Asp Val Ser Val Ile Pro Thr Gln Gly Asp Val Val Val Val  
 275 280 285  
 Ala Thr Asp Ala Leu Met Thr Gly Tyr Thr Gly Asp Phe Asp Ser Val  
 290 295 300  
 Ile Asp Cys Asn Val Ala Val Ser Gln Ile Val Asp Phe Ser  
 305 310 315

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<211> 957  
 <212> DNA  
 <213> Hepatitis C virus

<400> 31  
 atggttaagat caagtagtca aaattcgagt gacaagcctg tagcccacgt cgtagcaaac 60  
 caccaagtgg aggagcaggg aattcaccat caccatcacc acgtggatcc cgggcccacg 120  
 ggcgtagcca aatccattga cttcatcccc gttgagtctc tcgacatcgt gactaggtct 180  
 ccaagcttca ctgacaacag tacacctcca gccgtgcctc agacctacca agtgggggtat 240  
 ctccacgcgc ccactggtag cgggaagagt accaagggtcc ctgcagcgta cgccgctcag 300  
 gggtagaagg tgctgggtact gaacccctcc gtggctgcca ctttgggatt tggggcctac 360  
 atgtcaaaaag cgcacggagt caatcccaat atcaggaccg gggttcgcac ggtgaacact 420  
 ggggatccca tcacctactc cacgtatggc aaattcctcg cagatggagg ctgctctgga 480  
 ggcgcctatg gcatcataat atgcgacgaa tgccattoga cggactccac gaccatcctc 540  
 ggcacgagga ccgttctcga ccaagctgag acagctggag ttaggttggg ggtcttggcc 600  
 acggcgaccc caccgggacg tgtaacaacc ccacacccca acatagagga ggtggccctc 660  
 ggccacgagg gcgaaatccc cttctatggg aaggccatcc ctctctcaac catcaaggga 720  
 ggacgacatc taatcttctg tcattcaaag aaaaagtgcg acgagctcgc ggtggccctc 780  
 cgagcgatgg gccttaacgc ggtggcatac tacagagggc ttgacgtctc cgtgatacca 840  
 acacaaggag acgtgggtgg cgctgccacc gacgccctca tgacaggata tactggagac 900  
 ttcgactctg tgatcgactg caacatggcg gtctctcaaa ttgtagactt cagctaa 957

<210> 32  
 <211> 318  
 <212> PRT  
 <213> Hepatitis C virus

<400> 32  
 Met Val Arg Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His  
 1 5 10 15  
 Val Val Ala Asn His Gln Val Glu Glu Gln Gly Ile His His His His  
 20 25 30  
 His His Val Asp Pro Gly Pro Met Gly Val Ala Lys Ser Ile Asp Phe  
 35 40 45  
 Ile Pro Val Glu Ser Leu Asp Ile Val Thr Arg Ser Pro Ser Phe Thr  
 50 55 60  
 Asp Asn Ser Thr Pro Pro Ala Val Pro Gln Thr Tyr Gln Val Gly Tyr  
 65 70 75 80  
 Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala  
 85 90 95  
 Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala  
 100 105 110  
 Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asn  
 115 120 125  
 Pro Asn Ile Arg Thr Gly Val Arg Thr Val Asn Thr Gly Asp Pro Ile  
 130 135 140  
 Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly

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<400> 35  
gggccccacc atgggcgtgg ccaagtccat agactt

36

<210> 36  
<211> 33  
<212> DNA  
<213> Hepatitis C virus

<400> 36  
ctattagctg aagtctacaa cttgagtgac cgc

33

<210> 37  
<211> 36  
<212> DNA  
<213> Hepatitis C virus

<400> 37  
gggccccacc atgggcgtag ccaaattccat tgactt

36

<210> 38  
<211> 33  
<212> DNA  
<213> Hepatitis C virus

<400> 38  
ctattagctg aagtctacaa tttgagagac cgc

33

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